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**SVP-Business**  
**Development**

# **LA County Integrated Waste Management Task Force**

**February 20, 2014**

**Mario Gutierrez**  
**VP – Operations**



# Zero Waste Energy Company Overview

- ZWE founded by an experienced management team with strong backgrounds in the waste services industry
- Our Company's Mission: To design, build, and operate advanced solid waste processing facilities that optimize resource recovery and the generation of renewable energy in an efficient and environmentally sound manner

# Zero Waste Energy Technology Partners



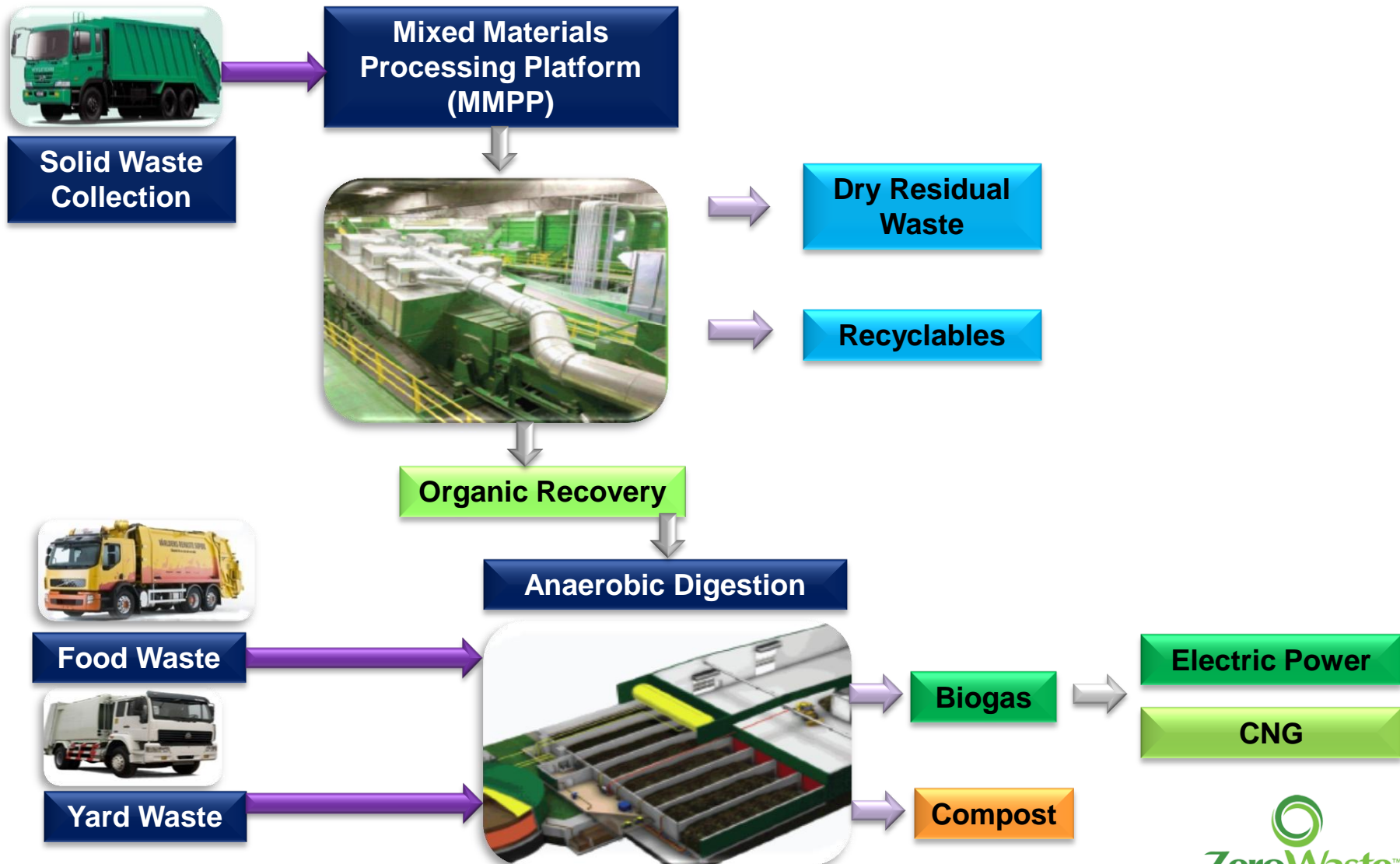
*What's next.*

- **Best-in-Class** waste sorting systems at lowest available rate as established by preferred vendor agreement
- **Customized Systems for ZWE** through preferred vendor agreement that reduces labor costs and increases material throughput and recovery rates
- **Equipment Manufacturer** for **SMARTFERM** for ZWE. Collection equipment under Heil and Marathon brands
- **Division of \$8 B Dover** Industries with manufacturing and distribution throughout the world



# Zero Waste Energy

## SMARTFERM Process Flow



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# ZWE Difference

- **Systems and approaches that generate a solid return on investment**
- **Technology built in the US specifically for the Waste Industry**
- **US Operating References for all size operations**
- **Flexible approaches from design – build to own-operate**



# SMARTFERM Feedstock

## ○ Acceptable Materials

- Food waste, organic fraction of MSW (OFMSW) and green waste
- Inorganic and inert materials are generally acceptable
- Shredding/size reduction not required



Source Separated Organics – Monterey Regional Waste Management District - Marina, CA



OFMSW – Republic Industries Newby Island Resource Recovery Park - Milpitas, CA



**SMARTFERM**

**Value Add Proposition**

# ZWE – Financial Return

25,000 AD to CNG

## Revenue Opportunities

### Tip Fees/Landfill Avoidance

Tip Fees/Landfill Avoidance and Transportation - Organic Materials @ \$55/ton

### Biogas Upgrade

CNG @ \$2.50/DGE - 298,981 DGE for 5 concrete digesters

### Compostable Material

Compostable Material 22,848 @ -\$10

### Environmental Attributes - (Carbon + RINs + LCFS)

## Total Revenue Opportunities

## Total Operating and SG&A Costs

## Net Available Contribution for Capex, Financing Costs and Profit

## Principal (Total SMARTFERM cost \$9.8M)

## Pre-tax cash flow

5 Digester Concrete 25,000 TPY	\$s Per Ton 25,000 TPY
\$ 1,375,000	\$ 55.00
\$ 747,453	\$ 29.90
\$ (228,480)	\$ (9.14)
\$ 639,169.00	\$ 25.56
<b>\$ 2,533,142</b>	<b>\$ 101.32</b>
<b>\$ (560,861)</b>	<b>\$ (22.43)</b>
<b>\$ 1,972,281</b>	<b>\$ 78.88</b>
\$ (687,499)	\$ (27.50)
<b>\$ 1,284,782</b>	<b>\$ 51.39</b>





# **SMARTFERM**

## **Project Examples**

# Zero Waste Energy – ZWEDC



Grand Opening - November 2013



# 90,000 TPY Organic Waste Conversion to CHP

## Zero Waste Energy Development Company

### San José, CA

### Scheduled Start-Up in November, 2013



Process	Results
Annual Volume (TPY)	90,000
Digester Dimensions	97' (L) x 18.2' (W)
Concrete Digesters	16
Residence Time	21 Days
Mode of Operation	Thermophilic (125-131°F)
Biogas Yield (CF/Ton)	3,000-3,200
Methane Content (%)	58
Electrical Output	1.6 MW
Finished Compost @ 40% MC (TPY)	34,000
Total Diversion	+84.5%



# 225,000 TPY Advanced Mixed Materials Recovery Facility

## 12,500 Organic Waste to CNG Conversion

### IREP @ Montgomery - Montgomery, AL

### Scheduled Start-Up in 2<sup>nd</sup> Quarter 2014



Process	Results
Annual Volume (TPY)	12,500
Digester Dimensions	48' (L) x 12' (W)
Steel Digesters	8
Residence Time	21 Days
Mode of Operation	Thermophilic (125-131°F)
Biogas Yield (CF/Ton)	3,000-3,200
Methane Content (%)	58 – 60
CNG (DGE/YR) Output	130,000 – 150,000
Finished and Screened Compost @ 40% MC (TPY)	4,200
Total Diversion	+95%

# Zero Waste Energy – IREP





# 11,200 TPY Organic Waste Conversion to CNG

Blue Line Transfer/ South San Francisco Scavenger Co.

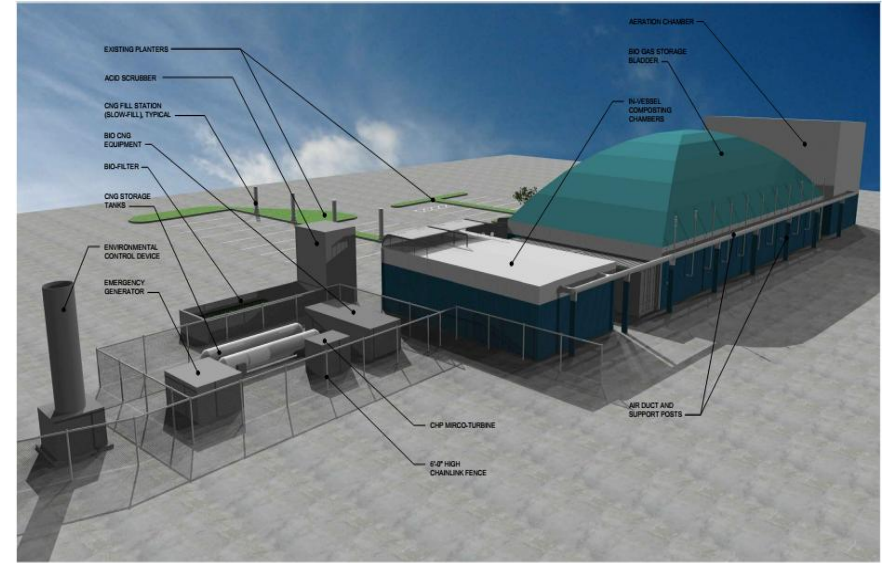
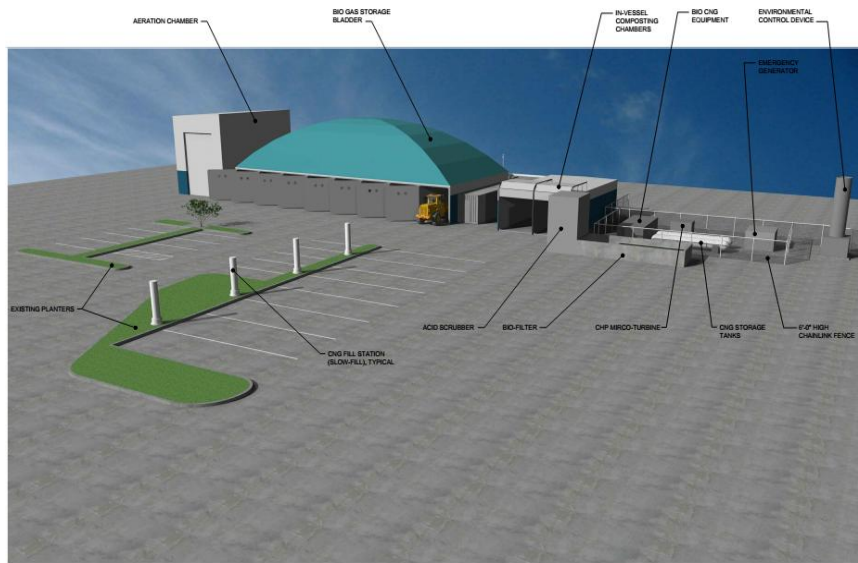
South San Francisco, CA

Scheduled Opening 2<sup>nd</sup> Quarter 2014



Process	Results
Annual Volume (TPY)	11,200
Digester Dimensions	45' (L) x 12' (W)
Steel Digesters	8
Residence Time	21 Days
Mode of Operation	Thermophilic (125-131°F)
Biogas Yield (CF/Ton)	3,000 – 3,200
Methane Content (%)	58 – 60
Compressed Natural Gas (DGE/yr)	120,000 (will fuel approx. 12 routes/year)
Finished Compost @ 40% MC (TPY)	4,400
Total Diversion	+95%

# Zero Waste Energy – Blue Line





# Zero Waste Energy Carbon Negative Fleets

## ANAEROBIC DIGESTION FACILITY



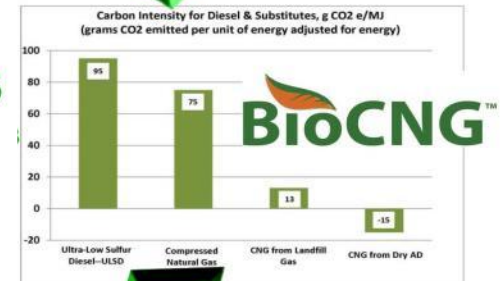
## BIOGAS CONDITIONING AND COMPRESSION

## CARBON NEGATIVE FLEETS

**FOOD  
WASTE/  
GREEN  
WASTE**



**CNG GARBAGE TRUCK**



# 5,000 TPY Biogas to CHP

Monterey Regional Waste Management District

Marina, CA

Opened February 2013



Process	Results
Annual Volume (TPY)	5,000
Digester Dimensions	40' (L) x 12' (W)
Steel Digesters	4
Residence Time	21 Days
Mode of Operation	Thermophilic (125-131°F)
Biogas Yield (CF/Ton)	3,000 – 3,200
Methane Content (%)	58 - 65
Electrical Output	100 kW
Finished Compost @ 40% MC (TPY)	2,200
Total Diversion	+99%



**First U.S. SMARTFERM Project**

Confidential and Proprietary



# Zero Waste Energy – MRWMD



Confidential and Proprietary





# 5,000 TPY Biogas to CHP

Agromin Project

Oxnard, CA

Scheduled Opening April, 2014



Process	Results
Annual Volume (TPY)	5,000
Digester Dimensions	40' (L) x 12' (W)
Digesters	4
Residence Time	21 Days
Mode of Operation	Thermophilic (125-131°F)
Biogas Yield (CF/Ton)	3,000 – 3,200
Methane Content (%)	58 - 60
Electrical Output	100 kw
Finished Compost @ 40% MC (TPY)	2,200
Total Diversion	+99%

***First Dover-ESG Built US SMARTFERM Project***

Confidential and Proprietary



**ZWE : Project Partner with the  
experience resources and technology to  
fully execute your project!**



Confidential and Proprietary

